THE JOURNAL OF
MINIMALLY INVASIVE
GYNECOLOGY

Case Report

Disseminated Peritoneal Leiomyosarcomas After Laparoscopic "Myomectomy" and Morcellation

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ABSTRACT Herein is reported a case of disseminated peritoneal leiomyosarcoma arising shortly after laparoscopic myomectomy and specimen retrieval with an electromechanical morcellator. The topography of the sarcomas suggests morcellation as a contributing factor. This case shows that caution should be exercised when selecting patients for laparoscopic myomectomy and stresses the need for a thorough pathologic examination of the specimen retrieved. Journal of Minimally Invasive Gynecology (2011) 18, 386–389 © 2011 AAGL. All rights reserved.

Keywords: Laparoscopy; Morcellation; Myomectomy; Peritoneal leiomyosarcoma; Uterine leiomyosarcoma

Disseminated leiomyomas occurring after laparoscopic morcellation of a myoma is a rare but reported entity [1-5]. The incidence of sarcomatous transformation in benign leiomyoma is 0.13% to 0.81% [6]. No imaging method can enable a reliable preoperative diagnosis of leiomyosarcoma vs leiomyoma [7]. Herein is reported a case in which disseminated peritoneal leiomyosarcoma developed after laparoscopic myomectomy and removal of the "myoma" via morcellation.

Case Report

A 42-year-old parous woman was referred with progressive abdominal distention, a nodule at the umbilicus, and severe pallor for 2 weeks. Three months previously at another hospital, she had undergone laparoscopic myomectomy of a 10 × 10-cm posterior intramural myoma, which had been observed using pelvic ultrasound for 8 years without any recent increase in size. The myoma was removed from the peritoneal cavity using an electromechanical morcellator. The operating records did not report any peritoneal disease at the time of surgery, and the histopathology report described benign leiomyoma with ischemic necrosis and areas of hyaline degeneration, with no evidence of mitotic activity, cellular atypia, or malignant disease.

When seen, the patient demonstrated dyspnea, with severe pallor and a distended tense abdomen. A 4 × 3-cm nodule was observed at the umbilicus. Contrast-enhanced computed tomography of the abdomen revealed multiple intraperitoneal mass lesions with central necrosis in all quadrants of the abdomen and along the port entry sites, and parenchymal lesions in the right lung base (Figs. 1, 2, 3).

A slide review of the original specimen performed at our institute showed interlacing fascicles of spindle cells with blunt ends, fine chromatin, and a moderate amount of cytoplasm with indistinct cell borders. Areas of myxoid change and tumor necrosis were observed. A few areas demonstrated cells with bizarre nuclei and multinucleation. The reported diagnosis was malignant spindle cell neoplasm, with morphologic features favoring smooth muscle origin. Core needle biopsy specimens from the umbilical and abdominal mass demonstrated a malignant spindle cell neoplasm positive for vimentin and smooth muscle actin and negative for desmin, S100, CD34, and CD117, consistent with a diagnosis of leiomyosarcoma of usual differentiation. The Ki67 proliferation index was 50% to 60%.

Because of poor performance status and extent of the disease, the patient was not considered a candidate for any surgical intervention. Palliative therapy was administered, and the patient died after 1 week.

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Submitted October 12, 2010. Accepted for publication January 21, 2011.
Available at www.sciencedirect.com and www.jmig.org

doi:10.1016/j.jmig.2011.01.014

Fig. 1

Abdominal contrast-enhanced computed tomographic scan, coronal view, shows variable-sized heterogeneous contrast-enhancing peritoneal masses (arrowheads) filling the entire abdomen. Arrow shows a port site deposit in the lateral abdomen. Of note is the absence of ascites and hepatic metastases.

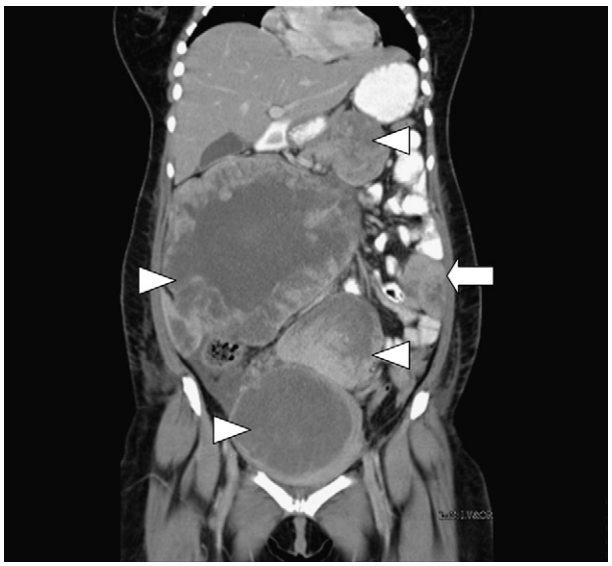
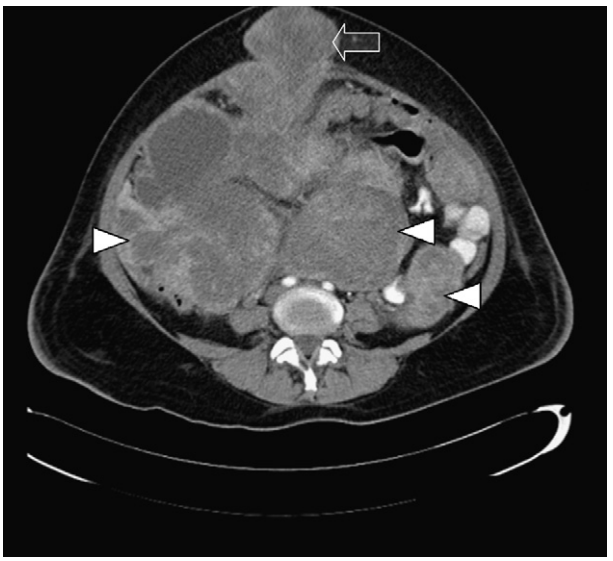


Fig. 2

Abdominal contrast-enhanced computed tomographic scan, axial view at the level of the umbilicus, shows variable-sized heterogeneous contrast-enhancing peritoneal masses (arrowheads). Arrow shows the umbilical port site deposit.



Discussion

Uterine sarcomas account for 1% of all gynecologic malignant lesions and 2% to 5% of all uterine malignant lesions [8]. Leiomyosarcoma accounts for 30% of uterine sarcomas [9]. Median age at diagnosis of leiomyosarcoma is 55 years [10]; however, blacks exhibit bimodal age distribution with an initial peak at about 35 years [8]. Leiomyosarcoma can arise from the uterine myometrium de novo or may be transformed from a preexisting benign leiomyoma. The incidence of sarcomatous transformation in benign leiomyoma is 0.13% to 0.81% [6]. Risk factors for development of sarcoma of the uterine corpus have not been completely elucidated [9].

The diagnosis of leiomyosarcoma usually is made after hysterectomy or myomectomy. Failure to respond to other traditional treatments for symptomatic myomas or abnormal uterine bleeding may also signify an underlying leiomyosarcoma. Leiomyosarcomas are suspected also if the uterus or myoma undergoes rapid enlargement, in particular in patients in the perimenopausal or postmenopausal age group [11]. Our patient had a pelvic mass, which had been observed using regular pelvic ultrasound for 8 years. There was no rapid enlargement of the myoma.

There are no pathognomonic features for any imaging technique that can be used to differentiate leiomyosarcoma from benign leiomyoma. Ultrasonographic features of uterine leiomyosarcoma include an inhomogeneous internal echo pattern, central necrosis, and irregular vessels with low impedance flow at color Doppler ultrasonography [12]. At magnetic resonance imaging, detection of scattered foci of hemorrhages or necrosis can suggest the diagnosis of uterine leiomyosarcoma [13]. The evidence regarding newer imaging methods such as 16-α [18F]fluoro-17 β-estradiol and [18F]fluorodeoxyglucose positron emission tomography is controversial [14,15].

Histologic features that help to differentiate leiomyosarcomas from benign leiomyomas include the presence of coagulative tumor necrosis, moderate or severe cytologic atypia, and presence of more than 10 mitoses per 10 high-power fields [9,16]. Histopathologic identification of leiomyosarcomas can be difficult because benign myomas can also have pleomorphic appearance and mitosis. Coagulative tumor cell necrosis is decisive for the diagnosis of leiomyosarcoma, and should be differentiated from hyaline and ulcerative necrosis [17]. Coagulative tumor cell necrosis features an abrupt transition between necrotic cells and preserved cells. Inflammatory cells are unusual. In our patient, failure to identify the type of cell necrosis could have led to the initial misdiagnosis.

A simple hysterectomy with oophorectomy is the standard treatment for early-stage uterine leiomyosarcomas [7]. In advanced-stage or recurrent disease, treatment is only palliative [18]. Doxorubicin has been the standard first-line therapy for unresectable sarcomas, and continues to be recommended according to sarcoma treatment guidelines [19]. Recently, gemcitabine and docetaxel have been demonstrated as effective alternative first-line therapies for unresectable leiomyosarcoma [20]. Because our patient had advanced stage disease, only palliative chemotherapy with doxorubicin could be administered.